

y, 17/11/2008 11:52:36 AM

wson

Process Sheet

CU-DAR001 Dart Helicopters Services	Drawing Name	: BRACKET ASSEMBLY
Number : 43485	Part Number	: D3183044
Estimate Number : 10291	Drawing Number	: D3183 REV C1
P.O. Number :	Project Number	: N/A
This Issue : 17/11/2008 S.O. No. :	Drawing Revision	: C1
Prsht Rev. : NC	Material	:
First Issue : / /	Due Date	: 24/11/2008
Previous Run : 42194	Qty:	12 Um: Each
Written By :		
Checked & Approved By : <u>JPD 08.11.17</u>		
Comment : Est Rev: Pick: A 04.02.18 New issue KJ/DS		
Est Rev: B Changed Mat Size 08-06-26 JLM Verified By: EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	M174B1500X02250	17-4 SS Bar 1.50 X2.250
-----	-----------------	-------------------------



Comment: Qty.: 0.4812 f(s)/Unit Total: 5.7746 f(s)

Material: 17-4 SS Bar per AMS 5604/5643

(M17-4-B1.500x02.250

Identify for D3183-4

Batch: M108309mk 08/12/03

(12)

2.0	BAND SAW	BAND SAW
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Comment: BAND SAW

Cut blanks: (1.500" x 2.250") 5.500" long

mk 08/12/03

3.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1,

1-Machine D3183-4 as per Folio FA322 and Dwg D3183

Identify as D3183-4

2-Deburr

3-Scribe batch number

mk 08/12/07

(12)

4.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
-----	-----	--



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

mk 08/12/07

(12)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D 3183-044 PAR #: _____ Fault Category: _____

NCR: Yes ☒ No ☐ DQA: D Date: 08/10/12

Resolution: _____ Disposition: _____

QA: N/C Closed: _____ Date: _____

NCR: <u>43485</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/12/05	3.0	1 part is scrap scrap. Part pop-out of the jigs during machining R.C. Process. 1 part only	<i>[Signature]</i>	Scrap: replace Qty 1 H108309. - Ensure part is properly placed in the vise.	J.F. 08/12/05	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
08-12-08	3.0	Qty 5 parts are under tolerance at the bottom 0.365" dim. 1 @ 0.050 → 2 @ 0.046 → 3 @ 0.041 → 4 @ 0.031 → 5 @ 0.010 →	<i>[Signature]</i> 08.12.08	Acceptable C/D ratio still > 1.5	mmf 08/12/08	<i>[Signature]</i>	<i>[Signature]</i> 08.12.08	<i>[Signature]</i> 08.12.08
08-12-08	3.0	R.C. Operator did not place the blanks in the right position (placed the blank at the wrong end of the vise), operator error	<i>[Signature]</i> 08.12.08	- Folio is clear.	mmf 08/12/08	<i>[Signature]</i>	<i>[Signature]</i> 08.12.08	<i>[Signature]</i> 08.12.08

NOTE: Date & initial all entries

Date: Monday, 17/11/2008 11:52:36 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BRACKET ASSEMBLY

Job Number: 43485

Part Number: D3183044

Job Number:



Seq. #:	Machine Or Operation:	Description :
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5.0	QC8	SECOND CHECK
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08-12-08 (12)

Comment: SECOND CHECK

6.0	D312121	Bolt
-----	---------	------



Comment: Qty.: 2.0000 Each(s)/Unit Total : 24.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
2	D3121-21	Bolt	B43536

08/12/08

7.0	D3183045	Bearing Assembly
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 24.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
2	D3183-045 Bearing Ass		B40159 (6x)

08/12/08 (18) B42179

8.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1
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Comment: SMALL & MEDIUM FAB RESOURCE 1
Assemble D3183-043 as per Dwg D3183.

08/12/08 (12)

9.0	QC5	INSPECT WORK TO CURRENT STEP
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Comment: INSPECT WORK TO CURRENT STEP

08/12/08 (12)

10.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Identify and Stock
Location: 233A

08/12/08 (12) 36

11.0	QC21	FINAL INSPECTION/W/O RELEASE
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Comment: FINAL INSPECTION/W/O RELEASE

08/12/10

Job Completion



MF 08-12-09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 43485
Description: Bracket		Part Number: D3183-4
Inspection Dwg: D3183	Rev: C1	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
R0.190	+/-0.030	8.190"	✓			
R0.063	+/-0.010	8.063"	✓			
0.188	+/-0.010	8.188"	✓			
0.070	+/-0.010	0.70"	✓			
0.100	+/-0.010	1.09"	✓			
Ø0.201 x 0.100	+/-0.010	Ø.203 x .100"	✓			
0.183	+/-0.010	1.182"	✓			
5.32	+/-0.030	5.298"	✓			
5.036	+/-0.010	5.037"	✓			
2.120	+/-0.010	2.118"	✓			
1.290	+/-0.010	1.288"	✓			
0.365	+/-0.010	1.366"	✓			
0.218	+/-0.010	1.211"	✓			
1.030	+/-0.010	1.028"	✓			
1.90	+/-0.030	1.888"	✓			
1.012	+/-0.010	1.009"	✓			
Ø0.201 x 0.100	+/-0.010	Ø.203 x .100"	✓			
0.786	+/-0.010	1.788"	✓			
Ø0.392	+0.002/-0.000	Ø.393"	✓			
R0.19	+/-0.030	8.190"	✓			
3.954	+/-0.010	3.956"	✓			
0.162	+/-0.010	1.159"	✓			
R0.19	+/-0.030	8.190"	✓			
R0.25	+/-0.030	8.250"	✓			
4.26	+/-0.030	4.261"	✓			
2.800	+/-0.030					
Calculated dimension						
0.162	+/-0.010	1.164"	✓			
0.615	+/-0.010	1.615"	✓			
0.435	+/-0.010	1.435"	✓			
0.200	+/-0.010	1.203"	✓			
0.381	+/-0.010	1.376"	✓			
0.032	+/-0.010	1.030"	✓			

Measured by: J.F.	Audited by: [Signature]	Prototype Approval:	N/A
Date: 08/12/05	Date: 08.12.08	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	03.11.12	New Issue P/O D3183-044	KJ/RF	
B	04.03.15	Changes as per revision C	KJ/JLM/RF	
C	04.06.15	Dimension 2.800 was 2.080; removed 1.155, 0.36 dimensions	KJ/JLM	
D	06.03.09	Dwg Rev update	KJ/JLM	
E	08.01.16	Dimensions revised	KJ/EC/DD	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

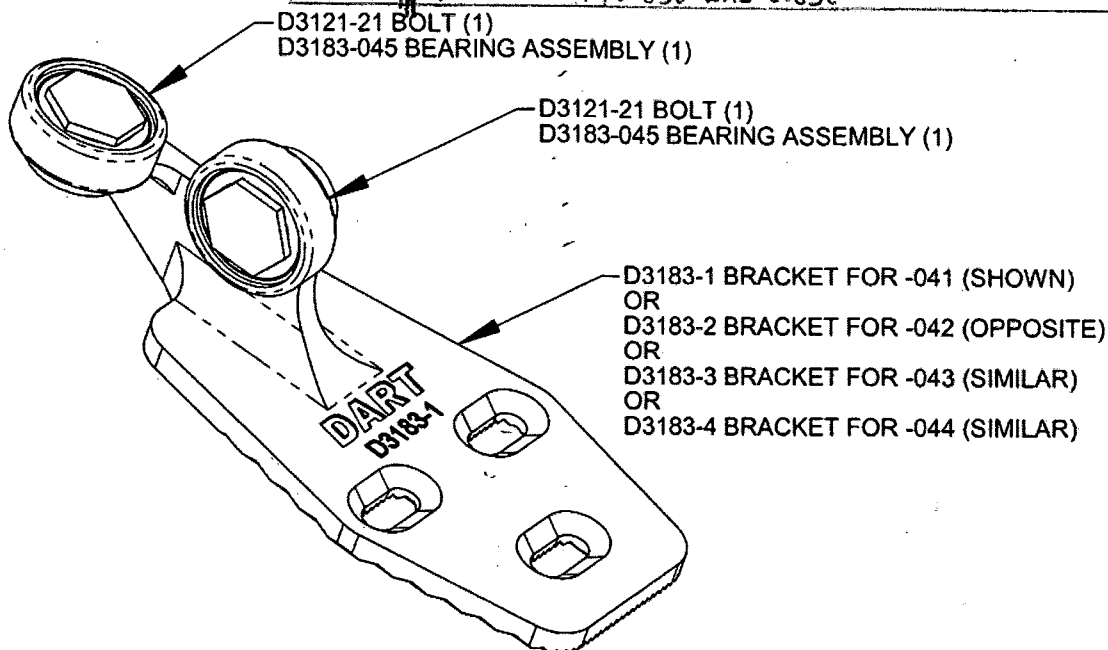
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

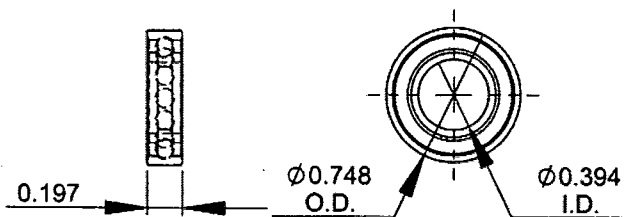


DESIGN #	DRAWN BY UP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D3183	REV. C SHEET 1 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY	SCALE 1:1
A.	03.01.24	NEW ISSUE	
B	03.06.17	REMOVE BEARING; 1.012 WS 0.882	
C	04.02.17	ADD -045/-9; 0.182 WAS 0.431	
C1	04.11.09	0.830 WAS 0.850	

RELEASED
04.03.01

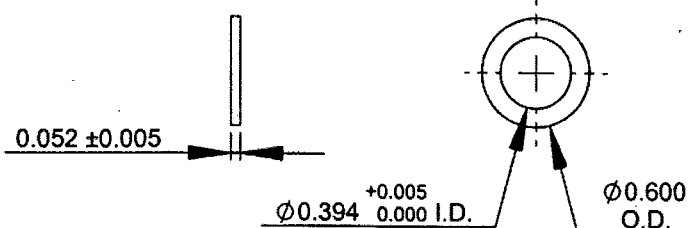


D3183-041 BRACKET ASSEMBLY (SHOWN)
D3183-042 BRACKET ASSEMBLY (OPPOSITE)
D3183-043 BRACKET ASSEMBLY (SIMILAR)
D3183-044 BRACKET ASSEMBLY (SIMILAR)



D3183-5 BEARING:
SPECIFICATION CONTROL DRAWING

- 1) SINGLE ROW, DEEP GROOVE, CONRAD TYPE, SHIELDED
- 2) POSSIBLE SUPPLIER: NSK P/N 6800ZZ
- 3) ALL DIMENSIONS ARE IN INCHES



D3183-7 WASHER

- 1) MATERIAL: AISI 303 ROUND BAR (M303R) ANNEALED
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

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NO 43485

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

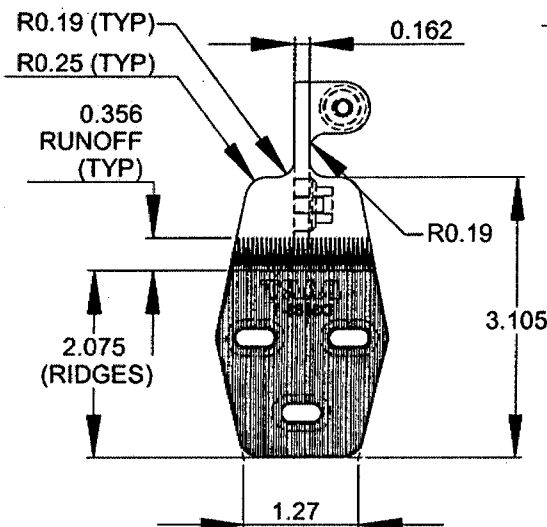
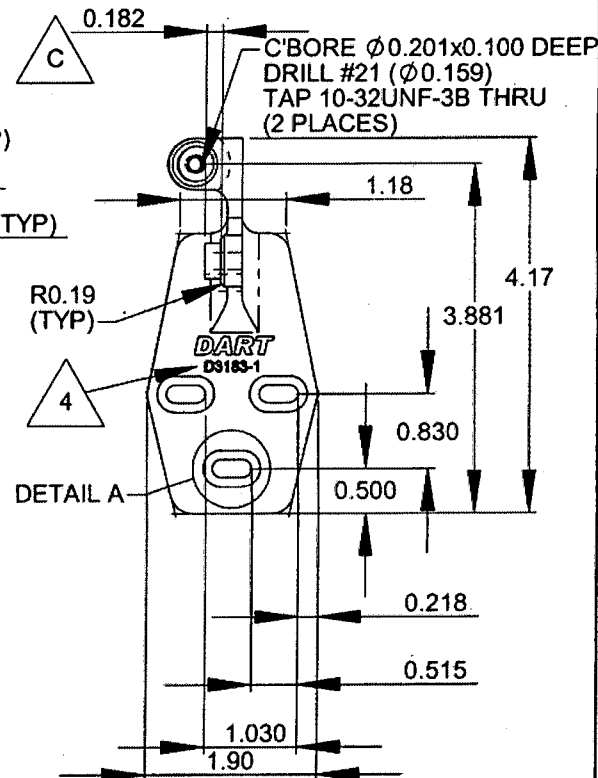
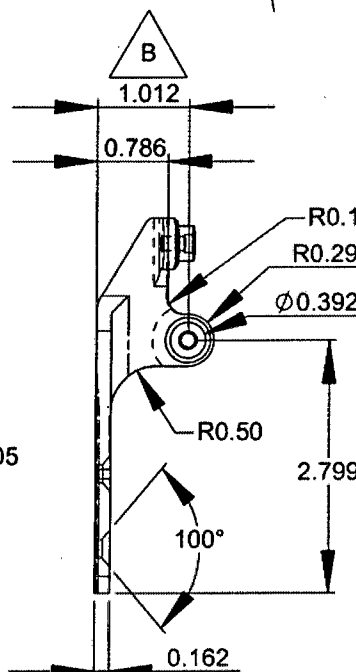
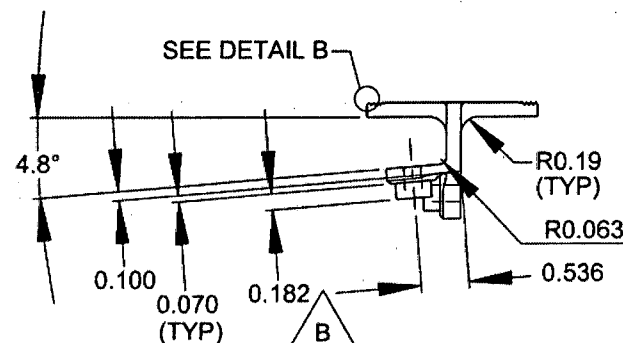
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	DRAWN BY	DART Aerospace Ltd
CHECKED	APPROVED	HAWKESBURY, ONTARIO, CANADA
DATE	TITLE	REV. C
04.02.17	BRACKET ASSEMBLY	SHEET 2 OF 4
		SCALE 1:2

RELEASED
04.03.01



**D3183-1 BRACKET SHOWN
D3183-2 BRACKET OPPOSITE**

- 1) D3183-1 CAN BE MADE FROM D3183-3
D3183-2 CAN BE MADE FROM D3183-4
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)
MIN ULTIMATE STRENGTH = 150 ksi
MIN YIELD STRENGTH = 100 ksi
- 3) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 4) ENGRAVE DART P/N & LOGO AS SHOWN
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

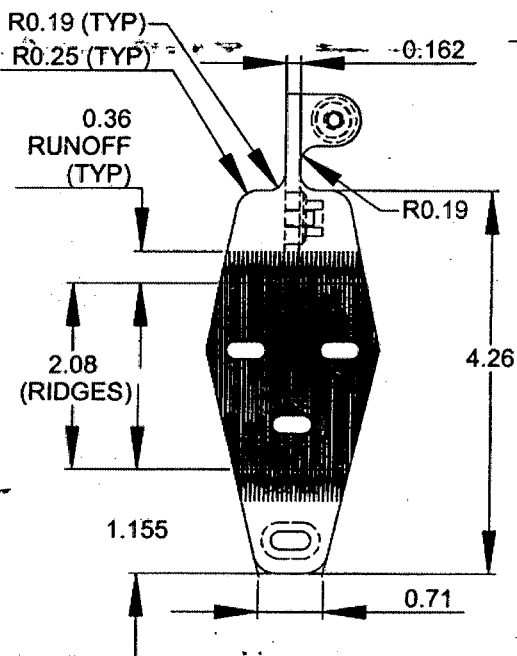
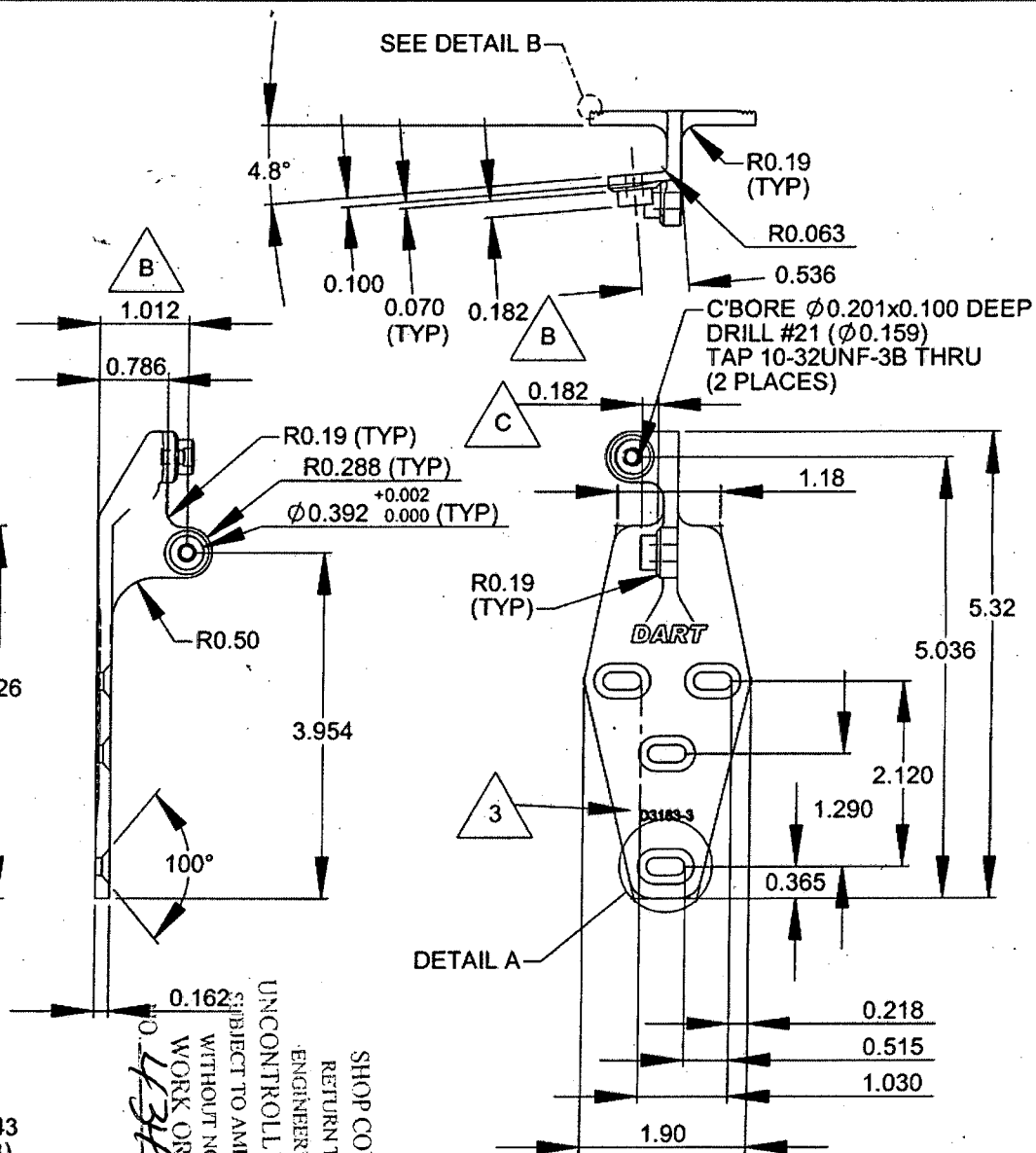
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. C
DATE		D3183	SHEET 3 OF 4
04.02.17		TITLE	SCALE
		BRACKET ASSEMBLY	1:2



D3183-3 BRACKET SHOWN
(REPLACES BELL P/N 412-030-304-105)
D3183-4 BRACKET OPPOSITE
(REPLACES BELL P/N 412-030-304-106)

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)
MIN ULTIMATE STRENGTH = 150 ksi
MIN YIELD STRENGTH = 100 ksi
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 3) ENGRAVE DART P/N & LOGO AS SHOWN
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

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RELEASED
04.03.01

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

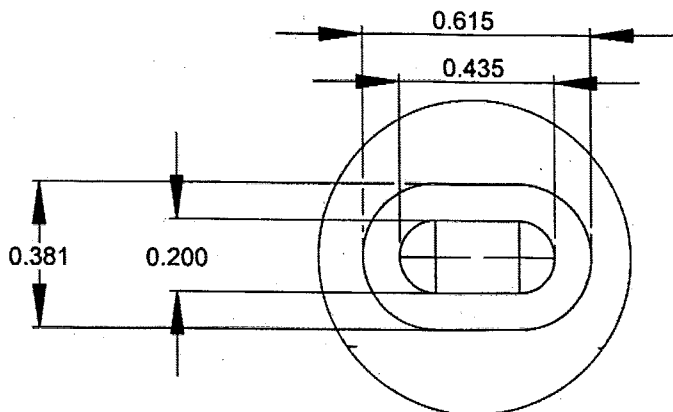
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

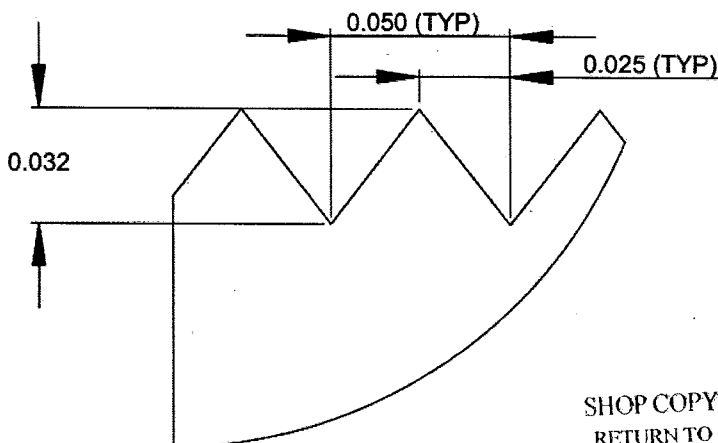


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CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3183	REV. C SHEET 4 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY	SCALE 1:1



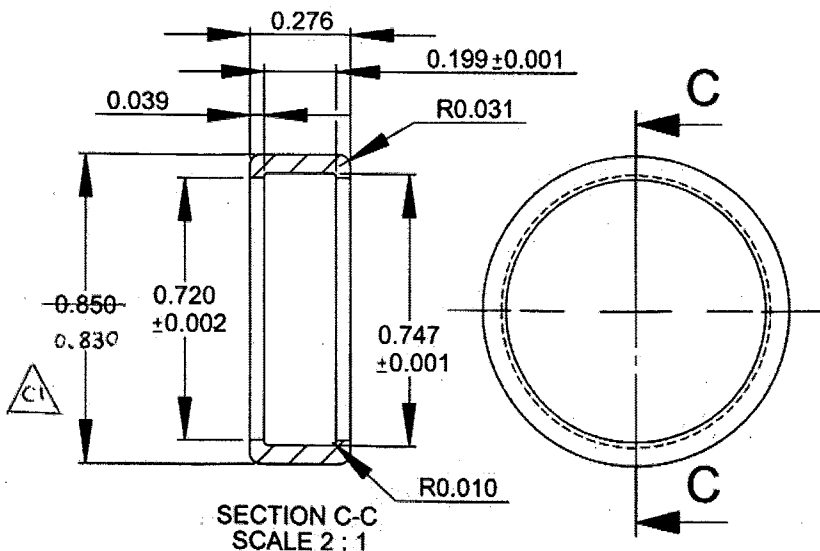
DETAIL A (2 : 1)

RELEASED
04.03.01 *[Signature]*



DETAIL B (20 : 1)

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SUBJECT TO AMENDMENT
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WORK ORDER
NO. 43185



D3183-9 CAP

- 1) MATERIAL: DELRIN ROD, Ø1.00
(REF DART SPEC. M-DELRIN-R1.00)
- 2) TOLERANCES ARE PER DART QSI 018
UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

D3183-045 BEARING ASSEMBLY

- 1) ASSEMBLE D3183-5 BEARING AND
D3183-9 CAP

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries